WO 00/43525

EL591094879US

SEQUENCE LISTING

· 110 · Immunex Corporation . 1. C. NEW METALISTROTEINADE DISINTEGERS FAMILY MEMBERS: SVEH THIAS AND PREFERENCES .130 - 03260.0093 00304 < 140 . <141> <150 > 60/116,670 <151 > 1999-01-21 <150> 60/138,682 <151> 1999-06-14 <150> 60/155,798 <151> 1999-09-27 <160 > 33 <170> PatentIn Ver. 2.1 <210> 1 <211> 129 <212> DNA <213> Homo sapiens <220> <223> "n" at various positions throughout the sequence may be any nucleotide <40(+>1 attittgata ccacagigac caacacggic acctaaqgig ticaattott tqiagcaagi 60 otoaettqua quatttgogo otgoaccaaa aatootoota caetgitean tigoggicat 120 129 gacangete <210> 2 <2115 469 +212 + DHA+213 - Homo cupiens 400 - 2 tititgagia agaaragate arqtittagi aaaacticca aaagaacaaa acagaticti 👀 caacccagga ggacatgtga gtcacaatac cotttaatoc acaggttggo toottggttt 120 ctggaactit ctgcctcctg taaacgatgt gegggtggta ccctccctca accagtggat 180 gettetteae gggtteaatg aaaaagtete eatgtggtag tiggaaaaat ceagteagte 240 catiggradge actigadeset gecestiercaa etletiggtigen intgetigtiaga accessigeracii 300

topaquitospos, qui papaparas, qui pusa bora, tiesitet tisso, latoppungarigi tite cestate. Se 0 to the tiese subtract that a subtract constitution of the subtract subtract 3.00

COIDS DNA 2213 - Homo sapiens < 4 ()() → 3 cacqagaatt taratettea aaqaaaatet aatgataste tiqeatqqte qtffqqaaaa 60 qualitation fugaatatq o taqatqaytq aqtantita o tagatahaaa taloottgoo 120 refigeraces, quierquica tquaerquit carqeturaq quartifecca functionaceae 180 tactgocaat qtagqqqtay gectaattqc ateatgyget caggaegeae tgggtttage 240 aattgeagtt atatetetit tittaaacat atetetiegg gageaacatg tetaaataat 300 athoccaggae taggitatgi gottaagaga tgitggaaaca aaatigitgga ggacaatgag 360 qualitytgatt gtggttecac agaggagtgt cagaaagatc ggtgttgcca atcaaattgt 420 aagttgeaac caggtgeeaa etgtageatt ggaetttget gteatgattg teggtttegt 480 ccatctggat acgtgtgtag gcaggaagga aatgaatgtg accttgcaga gtactgcgac 540 gggaattcaa gttootgooc aaatgacgtt tataagcagg atggaaccoo ttgcaagtat 600 qaaqqeeqtt qtttcaggaa ggggtgcaga tccagatata tgcagtgcca aagcattttt 660 qqacctqatq ccatqqagqc tcctagtgag tgctatgatg cagttaactt aataggtgat 720 caatttggta actgtgagat tacaggaatt cgaaatttta aaaagtgtga aagtgcaaat 780 teaatatgtg geaggetaea gtgtataaat gttgaaaeea teeetgattt geeagageat 840 acgactataa tttctactca tttacaggca gaaaatctca tgtgctgggg cacaggctat 900 catctateca tgaaacccat gggaatacct gacetaggta tgataaatga tggcacctcc 960 tqtqqagaag gccgggtatg ttttaaaaaa aattgcgtca atagctcagt cctgcagttt 1020 gactgtttgc ctgagaaatg caataccogg ggtgtttgca acaacagaaa aaactgccac 1080 tgcatgtatg ggtgggcacc tccattctgt gaggaagtgg ggtatggagg aagcattgac 1140 agtgggcctc caggactgct cagaggggeg attccctcgt caatttgggt tgtqtccate 1200 ataatgttto goottattti attaatoott toagtggttt tigigittit ooggoaagig 1260 ataggaaacc acttaaaacc caaacaggaa aaaatgccac tatccaaagc aaaaactgaa 1320 caggaagaat ctaaaacaaa aactgtacag gaagaatcta aaacaaaaac tggacaggaa 1380 gaatetgaag caaaaaetgg acaggaagaa tetaaagcaa aaaetggaca ggaagaatet 1440 aaagcaaaca ttgaaagtaa acgacccaaa gcaaagagtg tcaagaaaca aaaaaagtaa 1500 <210> 4 <211> 40 <212> PRT <213> Homo sapiens <220> <223> "Xaa" at various positions throughout the sequence may be any amino acid <400> 4 Met Thr Ala Xaa Glu Gln Cys Arg Arg Ile Phe Gly Ala Gly Ala Asn 1.0 7 5 The Ala See Glu The Cyn Tyr Lyn Gin Leu Ann The Leu Gly Anp Ard . (Val Gly His Cys Gly The Lys Asn 35,

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. 400 - 5

Glu Asp Trp Val Tyr Tyr Arg He Ser His Glu Glu Lys Asp Leu Phe 1 5 10 15

Glu Lys Arg Tyr Gly Asn Leu Ser His Val Lys Met Met Ala Ser Ser $\frac{35}{40}$. $\frac{40}{45}$

Ala Pro Leu Cys His Leu Ser Gly Thr Val Leu Gln Gln Gly Thr Arg

Val Gly Thr Ala Ala Leu Ser Ala Cys His Gly Leu Thr Gly Phe Phe 65 70 75 80

Gln Leu Pro His Gly Asp Phe Phe Ile Glu Pro Val Lys Lys His Pro 85 90 95

Leu Val Glu Gly Gly Tyr His Pro His Ile Val Tyr Arg Arg Gln Lys 100 105 110

Val Pro Glu Thr Lys Glu Pro Thr Cys Gly Leu 115 120

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·213> Homo sapiens

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1 5 10 15

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Leu Leu Asp Thr Asn Ile Leu Ala Pro Ala Thr Trp Ser Ala His Glu 35 40 45

Leu Gly His Ala Val Gly Met Ser His Asp Glu Gln Tyr Cys Gln Cys 50 60

And Gly And Pro Ann Cym Ile Met Gly Der Gly And The Gly Phe Ser

Ash Cys Ser Tyr Ile Ser Phe Phe Lys His Ile Ser Ser Gly Ala Thr 85 90 95

Cyc ben Ann Ann lle Pro Gly Leu Gly Tyr Val Leu Lyn Ard Cyn Gly 100 105 105 Gly Ala Asn Cys Ser lle Gly Leu Cys Cys His Asp Cys Arg Phe Arg 150 Pro Ser Gly Tyr Val Cys Arg Glm Glu Gly Asm Glu Cys Asp Leu Ala Glu Tyr Cys Asp Gly Asn Ser Ser Ser Cys Pro Asn Asp Val Tyr Lys 180 Gln Asp Gly Thr Pro Cys Lys Tyr Glu Gly Arg Cys Phe Arg Lys Gly Cys Arg Ser Arg Tyr Met Gln Cys Gln Ser 11e Phe Gly Pro Asp Ala 210 Met Glu Ala Pro Ser Glu Cys Tyr Asp Ala Val Asn Leu Ile Gly Asp 235 230 Gln Phe Gly Asn Cys Glu Ile Thr Gly Ile Arg Asn Phe Lys Lys Cys Glu Ser Ala Asn Ser Ile Cys Gly Arg Leu Gln Cys Ile Asn Val Glu 265 Thr Ile Pro Asp Leu Pro Glu His Thr Thr Ile Ile Ser Thr His Leu Gln Ala Glu Asn Leu Met Cys Trp Gly Thr Gly Tyr His Leu Ser Met 295 Lys Pro Met Gly Ile Pro Asp Leu Gly Met Ile Asn Asp Gly Thr Ser 315 Cys Gly Glu Gly Arg Val Cys Phe Lys Lys Asn Cys Val Asn Ser Ser 330 Val Leu Gln Phe Asp Cys Leu Pro Glu Lys Cys Asn Thr Arg Gly Val 345 Cys Asn Asn Arg Lys Asn Cys His Cys Met Tyr Gly Trp Ala Pro Pro 360 Phe Cys Glu Glu Val Gly Tyr Gly Gly Ser Ile Asp Ser Gly Pro Pro Gly ben ben Arg Gly Ala lie Fro ber ber lie Trp Vol Val Ber Ile He Met Phe Arg Leu He Leu Leu He Leu Ser Val Val Phe Val Phe 410

The Arg Gin Val Tie Gry Ash His ben bys Er - bys Gin Glu bys Met

 Val
 Gln
 Gln
 Glu
 Glu
 Glu
 Glu
 Glu
 Glu
 Glu
 Ala

 Lyn
 Th
 Gly
 Glu
 Glu
 Glu
 Ser
 Lyn
 Ala
 Lyn
 Th
 Gly
 Glu
 Glu
 Ser

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Lyc Ala Ash He Ghu Ser Lys Ard Pro Lys Ala Lys Ser Val Lys Lys 485 490 495

Gln Lys Lys

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<211> 766

<212> PRT

<213> Homo sapiens

<400> 12

Met Lys Met Leu Leu Leu His Cys Leu Gly Val Phe Leu Ser Cys
1 5 10 15

Ser Gly His Ile Gln Asp Glu His Pro Gln Tyr His Ser Pro Pro Asp 20 25 30

Val Val Ile Pro Val Arg Ile Thr Gly Thr Thr Aig Gly Met Thr Pro 35 40 45

Pro Gly Trp Leu Ser Tyr Ile Leu Pro Phe Gly Gly Gln Lys His Ile 50 60

Ile His Ile Lys Val Lys Lys Leu Leu Phe Ser Lys His Leu Pro Val 65 70 75 80

Pho Thr Tyr Thr Asp Gln Gly Ala He Leu Glu Asp Gln Pro Phe Val

Gln Ach Ach Cys Tyr Tyr His Gly Tyr Val Glu Gly Acp Fro Glu Ser

Deu Val Ser Deu Ser Thr Cys Phe Gly Gly Phe Gln Gly Ile Deu Gln 115 120 125

Fle Asn Asp Phe Ala Tyr Glu Fle Lys Pro Leu Ala Phe Ser Thr Thr 130 125 140

- Pho Giu Giu Ile Amp Am. Ser Thr Gln Lym Gln Ser Ser Tyr Val Gly 1 50 6 180
- Trp Trp The Hir Phe Ara lie Val Glu Tie Val Val Val Lie Asp Ass. 144 .1(1()
- Tyr Leu Tyr Ile Arg Tyr Glu Arg Asn Asp Ser bys Leu Leu Glu Asp 215
- Leu Tyr Val Ile Val Asn Ile Val Asp Ser Ile Leu Asp Val Ile Gly 235 230
- Val Lys Val Leu Leu Phe Gly Leu Glu Ile Tro Thr Asm Lys Asm Leu 250 245
- lle Val Val Asp Asp Val Arg Lys Ser Val His Leu Tyr Cys Lys Trp 265 260
- Lys Ser Glu Asn Ile Thr Pro Arg Met Gln His Asp Thr Ser His Leu 2:80 275
- Phe Thr Thr Leu Gly Leu Arg Gly Leu Ser Gly Ile Gly Ala Phe Arg 295
- Gly Met Cys Thr Pro His Arg Ser Cys Ala lle Val Thr Phe Met Asn 310 315 3.05
- Lys Thr Leu Gly Thr Phe Ser Ile Ala Val Ala His His Leu Gly His 325 330
- Asn Leu Gly Met Asn His Asp Glu Asp Thr Cys Arg Cys Ser Gln Pro 340 345
- Arg Cys lle Met His Glu Gly Asn Pro Pro Ile Thr Lys Phe Ser Asn 360
- Cys Ser Tyr Gly Asp Phe Trp Glu Tyr Thr Val Glu Arg Thr Lys Cys 375 370
- Leu Leu Glu Thr Val His Thr Lys Asp Ile Phe Asn Val Lys Arg Cys
- Gly Aon Gly Val Val Glu Glu Gly Glu Glu Cys Aop Cys Gly Pro Leu 4 (+1.
- Lys His Cys Ala bys Asp Pro Cys Cys Les Cer Ash Cys Thi bon Thi
- App Gly Ser Thr Cys Ala Phe Gly Leu Cys Cys Lys Asp Cys Lys Phe
- Den Pro Ber Gly Lyn Val Cyn Ard Lyn Giu Val Ann Giu Cyn Asp Eeu

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Val Giu Amp Gly lie Pro Cym Lym Glu Arg Gly Tyr Cym Tyr Glu Lym 4 25 % 400 Ser Cys His Asp Arg Ash Glu Gln Cys Arg Arg Ile Phe Gly Ala Gly Ana Assi Thi Ana Ser Gle Thi Cys Tyr Lys Giu Leu Assi Thi besi Gly Asp Arg Val Gly His Cys Gly lle Lys Asn Ala Thr Tyr lle Lys Cys 535 Ash He Ser Asp Val Gln Cys Giy Arg He Gln Cys Glu Ash Val Thr 555 550 Glu Ile Pro Asn Met Ser Asp His Thr Thr Val His Trp Ala Arg Phe 570 565 Asn Asp Ile Met Cys Trp Ser Thr Asp Tyr His Leu Gly Met Lys Gly 585 5.80 Pro Asp Ile Gly Glu Val Lys Asp Gly Thr Glu Cys Gly Ile Asp His 6.00 595 lle Cys Ile His Arg His Cys Val His Ile Thr Ile Leu Asn Ser Asn 615 Cys Ser Pro Ala Phe Cys Asn Lys Arg Gly Ile Cys Asn Asn Lys His 630 625 His Cys His Cys Asn Tyr Leu Trp Asp Pro Pro Asn Cys Leu Ile Lys 645 Gly Tyr Gly Gly Ser Val Asp Ser Gly Pro Pro Pro Lys Arg Lys Lys 660 Lys Lys Lys Phe Cys Tyr Leu Cys Ile Leu Leu Leu Ile Val Leu Phe lle Leu Leu Cys Cys Leu Tyr Arg Leu Cys Lys Lys Ser Lys Pro Ile 690 Lyr Lyr Gln Gln App Val Gln Thr Pro Ser Ala Lyr Glu Glu Glu Lyr 715 The Gln Ard Ard Pro Hir Giu Deu Pro Pro Gln Ser Gln Pro Trp Val 7.16 Met Pro Ser Gln Ser Gln Fro Pro Val Thr Pro Ser Gln Arg Gln Fro

745

Gli, ben Met in a Der Glin Cer Glin Pro Pro Val Thr Prio Ser

.213. Homo sapiens

. 400 - 13

Ser Gly Hir life Gli Asp Glu His Pro Gli Tyr His Ser Fro Pro Asp 20 25 30

Val Val Ile Pro Val Arg 11e Thr Gly Thr Thr Arg Gly Met Thr Pro $\frac{35}{40}$

Pro Gly Trp Leu Ser Tyr Ile Leu Pro Phe Gly Gly Gln Lys His Ile 50 55 60

Ile His Ile Lys Val Lys Lys Leu Leu Phe Ser Lys His Leu Pro Val 65 70 75 80

Phe Thr Tyr Thr Asp Gln Gly Ala Ile Leu Glu Asp Gln Pro Phe Val 85 90 95

Gln Asn Asn Cys Tyr Tyr His Gly Tyr Val Glu Gly Asp Pro Glu Ser 100 105 110

Leu Val Ser Leu Ser Thr Cys Phe Gly Gly Phe Gln Gly Ile Leu Gln
115 120 125

Ile Asn Asp Phe Ala Tyr Glu Ile Lys Pro Leu Ala Phe Ser Thr Thr 130 135 140

Phe Glu His Leu Val Tyr Lys Met Asp Ser Glu Glu Lys Gln Phe Ser 145 150 155 160

Thr Met Arg Ser Gly Phe Met Gln Asn Glu Ile Thr Cys Arg Met Glu 165 170 175

Phe Glu Glu Ile Asp Asn Ser Thr Gln Lys Gln Ser Ser Tyr Vai Gly 180 185 190

Trp Trp Ile His Phe Arg Ile Val Glu Ile Val Val Val Ile Asp Asn 195 200 205

Tyr Leu Tyr Ile Ard Tyr Glu Arg Asn Asp Ser Lys Leu Leu Glu Asp 210 215

Deu Tyr Val Ile Val Ach Ile Val Asp Ser Ile Deu Asp Val Ile Giy 225 - 236 - 240

Val Lys Val Leu Leu Phe Gly Leu Glu He Trp Thi Ash Lys Ash Leu 246 250 255

The Val Val App App Val App Lyn Ber Val Hir Leu Tyr Cyn Lyn Trp Deb

13

- Phe Thr Thr Leu Gly Leu Arg Gly Leu Ser Gly Ile Gly Ala Phe Arg 1990 - 299 - 300
- Gly Met Cyr Thr Pro His Arg Ser Cys Ala Ile Val Thr Phe Met Asn (4)
- type Thr Leu Gly The Phe Ser Lie Ala Val Ala Hee Hee Leu Gly Hee 325 336
- Asn Leu Gly Met Asn His Asp Glu Asp Thr Cys Arg Cys Ser Gln Pro340 -345 -350
- Arg Cys 11e Met His Glu Gly Asn Pro Pro 11e Thr Lys Phe Ser Asn 365
- Cys Ser Tyr Gly Asp Phe Trp Glu Tyr Thr Val Glu Arg Thr Lys Cys 370 380
- Leu Leu Glu Thr Val His Thr Lys Asp 11e Phe Asn Val Lys Arg Cys 385 390 395 400
- Gly Asn Gly Val Val Glu Glu Glu Glu Glu Cys Asp Cys Gly Pro Leu 405 410 415
- Lys His Cys Ala Lys Asp Pro Cys Cys Leu Ser Asn Cys Thr Leu Thr 420 425 430
- Asp Gly Ser Thr Cys Ala Phe Gly Leu Cys Cys Lys Asp Cys Lys Phe 435 440 445
- Leu Pro Ser Gly Lys Val Cys Arg Lys Glu Val Asn Glu Cys Asp Leu 450 455 460
- Pro Glu Trp Cys Asn Gly Thr Ser His Lys Cys Pro Asp Asp Phe Tyr 465 470 475
- Val Glu Asp Gly 11e Pro Cys Lys Glu Arg Gly Tyr Cys Tyr Glu Lys 485 490 495
- Ser Cys His Asp Arg Asn Glu Gln Cys Arg Arg Ile Phe Gly Ala Gly 500 505 510
- Ala Ann The Ala Ser Glu Thr Cyn Tyr Dyn Glu Deu Ann Thr Deu Gly 616 525
- App Ard Val Gly His Cym Gly Tie Lys App Ala Thi Tyr Tle Lyb Cym 530 540
- Ash The Ser Asp Val Glin Cys Gly Arg The Glin Cys Gliu Ash Val Thr 545 550 550 560
- Glu The Pre-Ann Met Der Ann Hir Thr Thr Val Hir Trp Ala Arg Phe $_{\rm GCG}$

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- Fro Asp Tie Gly Glu Val Lys Asp Gly Thi Glu Cys Gly The Asp His 6.06 ± 6.06
- The Cyn The Hin Ard Hin Cyn Val Hin The Thu The Leu Ann Ser Ann 616 616
- cyn Ser Pro Ala Phe Cyn Ann byn Arq Gly He Cyn Ann Ann Lyn Hin eis 630 630 630
- His Cys His Cys Asn Tyr Leu Trp Asp Pro Pro Asn Cys Leu Ile Lys 645 650 655
- Gly Tyr Gly Gly Ser Val Asp Ser Gly Pro Pro Pro Lys Arg Lys 660 665 670
- Lys Lys Phe Cys Tyr Leu Cys Ile Leu Leu Leu Ile Val Leu Phe 675 680 685
- Ile Leu Leu Cys Cys Leu Tyr Arg Leu Cys Lys Lys Ser Lys Pro Ile 690 695 700
- Lys Lys Gln Gln Asp Val Gln Thr Pro Ser Ala Lys Glu Glu Lys 705 710 715 720
- Ile Gln Arg Arg Pro His Glu Leu Pro Pro Gln Ser Gln Pro Trp Val 725 730 735
- Met Pro Ser Gln Ser Gln Pro Pro Val Thr Pro Ser Gln Ser His Pro 740 745 750
- Gln Val Met Pro Ser Gln Ser Gln Pro Pro Gln Asn Leu Phe Leu Phe 755 760 765
- Ser Phe Ser Ile Ser Asp Cys Val Leu Asn Phe Arg Leu Leu Tyr Leu 770 775 780

Gln Ala Thr 785

<.210> 14

+211 - 820

+212> PPT

+2135 Homo sapiens

-400> 14

- Met Lyn Met Leu Leu Leu Eur Heu Hin Cyn Jeu Gly Val Phe Leu Ser Cyn 1 5 10 15
- Ser Gly His IIe Gl
n Asp Glu His Pro Gl
n Tyr His Ser Pro Pro Asp Po-20
- Val Val 110 Pro Val Ang The The Gly The The Ard Gly Med The Pro

- ile His lle Lys Val Lys Lys Leu Leu Phe Ser Lys His Leu Pro Val
- the Thr Tyr Thr Asp Glu Gly Ala He Leu Glu Asp Glu Fro the Val $\frac{\mu_{3}}{\mu_{3}}$
- Gln Asn Asn Cys Tyr Tyr His Gly Tyr Val Glu Gry Asp Pro Glu Ser 100 105 110
- beu Val Ser Leu Ser Thr Cys Phe Gly Gly Phe Gln Gly 11e Leu Gln
- lle Asn Asp Phe Ala Tyr Glu Ile Lys Pro Leu Ala Phe Ser Thr Thr 130 135 140
- Phe Glu His Leu Val Tyr Lys Met Asp Ser Glu Glu Lys Gln Phe Ser 145 150 155 160
- Thr Met Arg Ser Gly Phe Met Gln Asn Glu Ile Thr Cys Arg Met Glu 165 170 175
- Phe Glu Glu Ile Asp Asn Ser Thr Gln Lys Gln Ser Ser Tyr Val Gly 180 185 190
- Trp Trp 1le His Phe Arg 1le Val Glu Ile Val Val Val Ile Asp Asn 195 200 205
- Tyr Leu Tyr Ile Arg Tyr Glu Arg Asn Asp Ser Lys Leu Leu Glu Asp 210 215 220
- Leu Tyr Val Ile Val Asn Ile Val Asp Ser Ile Leu Asp Val Ile Gly 225 235 236
- Val Lys Val Leu beu Phe Gly Leu Glu Ile Trp Thr Asn Lys Asn Leu 245 250 255
- lle Val Val Asp Asp Val Arg Lys Ser Val His Leu Tyr Cys Lys Trp 260 265 270
- Lys Ser Glu Asn Ile Thr Pro Arg Met Gln His Asp Thr Ser His Leu 275 280 285
- Pho Thr Thr Leu Gly Leu Arq Gly Leu Ser Gly Ile Gly Ala Phe Arq 290 295

- Ach Lee Cly Mer Ach His App Gle App Thr Cyc Art Cyc Ser Clic Pro $\frac{1}{240}$

Cys Ser Tyr Gly Asp Phe Trp Glu Tyr Thr Val Glu Ard Thr Lys Cys ben ben Glu Thr Val His Thr bys Asp Ile Phe Ash Val Lys Arg Cyr div Ann Gly Val Val dia Glu Gly Glu Glu Cyn Ang Cyn Gly Pro Lea Lys His Cys Ala Lys Asp Pro Cys Cys Leu Ser Asn Cys Thr Leu Thr 425 Asp Gly Ser Thr Cys Ala Phc Gly Leu Cys Cys Lys Asp Cys Lys Phe 440 Leu Pro Ser Gly Lys Val Cys Arg Lys Glu Val Asn Glu Cys Asp Leu Pro Glu Trp Cys Asn Gly Thr Ser His Lys Cys Pro Asp Asp Phe Tyr 475 Val Glu Asp Gly Ile Pro Cys Lys Glu Arg Gly Tyr Cys Tyr Glu Lys Ser Cys His Asp Arg Asn Glu Gln Cys Arg Arg Ile Phe Gly Ala Gly 505 Ala Asn Thr Ala Ser Glu Thr Cys Tyr Lys Glu Leu Asn Thr Leu Gly Asp Arq Val Gly His Cys Gly Ile bys Asn Ala Thr Tyr Ile bys Cys 535 Asn lle Ser Asp Val Gln Cys Gly Arg Ile Gln Cys Glu Asn Val Thr Glu Ile Pro Aon Met Ser Aop His Thr Thr Val His Trp Ala Arg Phe 570 Asn Asp Ile Met Cys Trp Ser Thr Asp Tyr His Leu Gly Met Lys Gly Pro Asp IIe Gly Glu Val Lys Asp Gly Thr Glu Cys Gly IIe Asp His The Cys Ile His Ard His Cys Val His Ile Thr Ile Leu Ash Ser Ash 610 Cys Ser Pro Ala Phe Cys Asn Lys Arg Gly Ile Cys Asn Asn Lys His 635 His Cyr His Cyn Arn Tyr ben Trp Arp Pro Iro Arn Cyn ben Ilo Lyr + 4 t + 4.17

17

Lys Lys Lys Phe Cys Tyr Leu Cys Ile Leu Leu Leu Ile Val Leu Phe- $\epsilon R0$ The Leu Leu Cyn Cyn Leu Tyr Ard Leu Cyn Lyn Lyn Ser Lyn Pro The ę. saš, Dyn Tyn Gin Gin Amp Val Gin Thr Pro Ner Ala Lyn Glu Giu Giu Dy. 710 715 Ile Gln Arq Arq Pro His Glu Leu Pro Pro Gln Ser Gln Pro Trp Val 730 725 Met Pro Ser Gln Ser Gln Pro Pro Val Thr Pro Ser Gln Ser His Pro 745 740 Arg Val Met Pro Ser Gln Ser Gln Pro Pro Val Met Pro Ser Gln Ser 755 760 765 His Pro Gln Leu Thr Pro Ser Gln Ser Gln Pro Pro Val Met Pro Ser 780 775 Gln Ser His Pro Gln Leu Thr Pro Ser Gln Ser Gln Pro Pro Val Thr 795 790 785 Pro Ser Gln Arg Gln Pro Gln Leu Met Pro Ser Gln Ser Gln Pro Pro 810 805 815 Val Thr Pro Ser 820 <.210> 15 <211> 790 <212> PRT <213> Homo sapiens <400> 15 Met Arg Ser Val Gln Ile Phe Leu Ser Gln Cys Arg Leu Leu Leu Leu 1 . 1 5 10 Leu Val Pro Thr Met Leu Leu bys Ser Leu Gly Glu Asp Val Ile Phe

20

His Pro Glu Gly Glu The Asp Ser Tyr Glu Val The Tre Pro Glu Lys

hen Ber Eme Ara Sty Gin Val Gli Gly Val Val Der Ero Val Der Tyr

Leu Leu Gln Leu Lys Gly Lys Lys His Val Leu His Leu Trp Pro Lys

Arribea, Dear Lear Proc Arq Him Deur Ara Val Phe Ser The Thr Slin Him

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Mot Gly Ser Val Lys Glu Ser Leu Asp Ser Lys Ala Thr Ile Ser Thr 120 Cys Met Gly Gly Leu Arg Gly Val Phe Ash Ile Asp Ala Lys His Tyr 135 cln He Glu Fro Len Lys Ala Ser Pro Ser Phe Glu His Val Val Tvr 14.0 145 Leu Lys Lys Glu Gln Phe Gly Asn Gin Val Cys Gly Leu Ser Asp 165 170 Asp Glu lle Glu Trp Gln Met Ala Pro Tyr Glu Asn Lys Ala Arg Leu 185 Arg Asp Phe Pro Gly Ser Tyr Lys His Pro Lys Tyr Leu Glu Leu Ile 200 195 Leu Leu Phe Asp Gln Ser Arg Tyr Arg Phe Val Asn Asn Asn Leu Ser 215 Gln Val Ile His Asp Ala lle Leu Leu Thr Gly Ile Met Asp Thr Tyr 235 230 Phe Gln Asp Val Arg Met Arg Ile His Leu Lys Ala Leu Glu Val Trp 250 245 Thr Asp Phe Asn Lys Ile Arg Val Gly Tyr Pro Glu Leu Ala Glu Val 260 Leu Gly Arg Phe Val Ile Tyr Lys Lys Ser Val Leu Asn Ala Arg Leu 280 Ser Ser Asp Trp Ala His Leu Tyr Leu Gln Arg Lys Tyr Asn Asp Ala 290 Leu Ala Trp Ser Phe Gly Lys Val Cys Ser Leu Glu Tyr Ala Gly Ser 315 310 Val Ser Thr Leu Leu Asp Thr Asn Ile Leu Ala Pro Ala Thr Trp Ser 325 Ala His Glu Leu Gly His Ala Val Gly Met Ser His Asp Glu Gln Tyr 345 Cym Gln Cym Arg Gly Arg Pro Asn Cym Ile Met Gly Ser Gly Arg Thr Gly Phe Ser Asn Cys Ser Tyr Ile Ser Phe Phe Lys His Ile Ser Ser 375 Gly Ala Thr Cyc Len Acn Acn He Pro Gly Leu Gly Tyr Val Leu Lyc 400

- Ser Thr Glu Glu Cys Gln Lys Asp Arq Cys Cys Gln Ser Asn Cys Lys 420 425 430
- Leu Gln Pro Gly Ala Ann Cyn Ser lle Gly beu Cyn Cyn Hin Anp Cyn 440 445.
- And Pho And Pho Ser Gry Tyr Val Cyr And Glin Gle Gly Ach Glin Cyr. 450 495 400
- Asp Leu Ala Glu Tyr Cys Asp Gly Asn Ser Ser Ser Cys Pro Asn Asp 465 470 475 480
- Val Tyr Lys Gln Asp Gly Thr Pro Cys Lys Tyr Glu Gly Arg Cys Phe 485 490 496
- Arg Lys Gly Cys Arg Ser Arg Tyr Met Gln Cys Gln Ser Ile Phe Gly 500 505 510
- Pro Asp Ala Met Glu Ala Pro Ser Glu Cys Tyr Asp Ala Val Asn Leu 515 520 525
- lle Gly Asp Gln Phe Gly Asn Cys Glu Ile Thr Gly Ile Arg Asn Phe 530 535 540
- Lys Lys Cys Glu Ser Ala Asn Ser Ile Cys Gly Arg Leu Gln Cys Ile 545 550 555 560
- Asn Val Glu Thr Ile Pro Asp Leu Pro Glu His Thr Thr Ile Ile Ser 565 570 575
- Thr His Leu Gln Ala Glu Asn Leu Met Cys Trp Gly Thr Gly Tyr His
- Leu Ser Met Lys Pro Met Gly Ile Pro Asp Leu Gly Met Ile Asn Asp
- Gly Thr Ser Cys Gly Glu Gly Arg Val Cys Phe Lys Lys Asn Cys Val 610 620
- Asn Ser Ser Val Leu Glin Phe Asp Cys Leu Pro Glu Lys Cys Asn Thi 625 630 635 640
- Arg Gly Val Cys Asn Asn Arg Lys Asn Cys His Cys Met Tyr Gly Trp 645 650 656
- Ala Pro Pro Phe Cys Glu Glu Val Gly Tyr Cry Gly Cer Ille Acp Ser 660 - 655 - 670
- Gly Pro Pro Gly Leu Leu Arg Gly Ala Ile Pro Ser Ser Ile Trp Val
- Wal for the the Met Phe Arq Let The Bew Lett The Dear Cer Val Val

20

Glu Dys Met Fro Leu Ser Dys Ala Dys Thr Glu Glu Glu Glu Ser Dys 71% 730 733

The Lye The Val Gle Glu Glu See Lye The Lye The Gly Gle Glu Glu Glu 246

rer Glu Ala Lys Inc Gly Glu Glu Glu Fer Lys Ala Lys Thr Gly Gli. 765

Glu Glu Ser Lys Ala Asn Ile Glu Ser Lys Arg Pro Lys Ala Lys Ser 770 780

Val Lys Lys Gln Lys Lys 785 790

<210> 16

<211> 781

<212> PRT

<213> Homo sapiens

. 1005 16

Met Arg Ser Val Gln Ile Phe Leu Ser Gln Cys Arg Leu Leu Leu Leu 1 5 10 15

Leu Val Pro Thr Met Leu Leu Lys Ser Leu Gly Glu Asp Val Ile Phe 20 25 30

His Pro Glu Gly Glu Phe Asp Ser Tyr Glu Val Thr Ile Pro Glu Lys 35 40 45

Deu Ser Phe Arg Gly Glu Val Gln Gly Val Val Ser Pro Val Ser Tyr 50 55 60

Leu Leu Gln Leu Lys Gly Lys Lys His Val Leu His Leu Trp Pro Lys 65 70 75 80

Ard Leu Leu Pro Arg His Leu Arg Val Phe Ser Phe Thr Glu His
85 90 95

Gly Glu Leu Glu Asp His Pro Tyr Ile Pro Lys Asp Cys Asn Tyr

Met Gly Ser Val Lyn Glu Ser Leu App Ser Lyn Ala Tha Ile Ser Thi 115 - 156

Cyn Met Gly Gly Leu Ar $_{1}$ Gly Val Phe Arn The Asp Ala Lyn Hin Tyr $_{130}$ $_{135}$ $_{140}$

Gln He Glu Pro Leu Lys Ala Ser Pro Ser Phe Glu His Val Val Tyr 146 - 169 - 169 - 169

Ten her by: Lym Glu Glu Ehe Gly Ann Glu Val Cyr Gly Len her Asp

WO 00/43525 PCT/US00/01338 21

Ard Amp Phe Pro Gly Ser Tyr Lym Him Pro Lym Tyr Leu Glu Leu ile

Leu Leu Phe Acp Gln Ser Ard Tyr Ard Phe Val Ash Ash Ash Leu Ser

Gin Val The His App Ala The bearboar The Gly Tie Met App The Tyr

Phe Glr Asp Val Arg Met Arg Ile His Leu Lys Ala Leu Glu Val Trp

Thr Asp Phe Ash Lys Ile Arq Val Gly Tyr Pro Glu Leu Ala Glu Val 265

Leu Gly Arg Phe Val Ile Tyr Lys Lys Ser Val Leu Asn Ala Arg Leu

Ser Ser Asp Trp Ala His Leu Tyr Leu Gln Arg Lys Tyr Asn Asp Ala

Leu Ala Trp Ser Phe Gly Lys Val Cys Ser Leu Glu Tyr Ala Gly Ser

Val Ser Thr Leu Leu Asp Thr Asn Ile Leu Ala Pro Ala Thr Trp Pro 330

Ala His Glu Leu Gly His Ala Val Gly Met Ser His Asp Glu Gln Tyr 345

Cys Gln Cys Arg Gly Arg Leu Asn Cys Ile Met Gly Ser Gly Arg Thr 360

Gly Phe Ser Asn Cys Ser Tyr Ile Ser Phe Phe Lys His 11e Ser Ser 375

Gly Ala Thr Cys Leu Asn Asn 11e Pro Gly Leu Gly Tyr Val Leu Lys 395 390

Arg Cys Gly Asn Lys Ile Val Glu Asp Asn Glu Glu Cys Asp Cys Gly 410 405

Ser Thr Glu Glu Cys Gln Lys Asp Arg Cys Cys Gln Ser Asn Cys Lys 425

Leu Gln Pro Gly Ala Ann Cys Ser Ile Gly Leu Cyc Cys His Asp Cyc 4.40 4 5 5

Arg Phe Arg Pro Ser Gly Tyr Val Cys Arg Gln Glu Gly Asn Glu Cys 455

App hen Ala Glu Tyr Cyn App Gly Abn Ser ber ber Cyn Fri Abn App

Arg Lyn Gly Cyn Arg Ser Arg Tyr Met Gln Cyn Gln Ser Ile Phe Gly i, () i, Tro Amp Ala Met Glu Ala Pro Ser Glu Cym Tyr Amp Ala Val Am Leu Hie Gly App Gln Phe Gly Ann Cyn Glu lle Thr Gry He Ard Ann Phe 6,36, Lys Lys Cys Glu Ser Ala Asn Ser Ile Cys Gly Arg Leu Gln Cys Ile 550 Asn Val Glu Thr lle Pro Asp Leu Pro Glu His Thr Thr lle lle Ser 570 Thr His Leu Gln Ala Glu Asn Leu Met Cys Trp Gly Thr Gly Tyr His 585 Leu Ser Met Lys Pro Met Gly Ile Pro Asp Leu Gly Met Ile Asn Asp 600 Gly Thr Ser Cys Gly Glu Gly Arg Val Cys Phe Lys Lys Asn Cys Val Asn Ser Ser Val Leu Gln Phe Asp Cys Leu Pro Glu Lys Cys Asn Thr 630 635 Arg Gly Val Cys Asn Asn Arg Lys Asn Cys His Cys Met Tyr Gly Trp Ala Pro Pro Phe Cys Glu Glu Val Gly Tyr Gly Sly Ser Ile Asp Ser 665 Gly Pro Pro Gly Leu Leu Arg Gly Ala Ile Pro Ser Ser Ile Trp Val 680 Val Ser Ile Ile Met Phe Arg Leu Ile Leu Leu Ile Leu Ser Val Val 695 700 Phe Val Phe Phe Arq Gln Val Ile Gly Asn His Leu Lys Pro Lys Gln 715 Glu Lys Met Pro Leu Ser Lys Ala Lys Thr Glu Glu Glu Glu Ser Lys 725 730 Thr Lys Thr Val Glm Glu Glu Ser Lys Thr Lys Thr Gly Glm Glu Glu 740 745 Ser Glu Ala Lys Thr Gly Glu Glu Glu Ser Lys Ala Asn Ile Glu Ser 760

Lys Arg Pro Lys Ala Lys Ser Val Lys Lys Gln Lys Lys

WO 00/43525

2213 - Artiff hal Sespense

- 1113 +	Artificial Sequence	
. PRO - . RR s -	Description of Artificial Sequence: oligomucleotido	
·400 · caccta	in aggregate attent top	1. 5
<210><211><211><212><213>	23	
<220><223>	Description of Artificial Sequence: oligonucleotide	
<400> caaat.	18 actgc aagtgagact tgc	23
<210><211><211><212><213>	24	
<220 > <223 >	Description of Artificial Sequence: oligonucleotide	
<400> tgcac	19 Baacta egtgtggtgt accc	24
<210><211><2112<<213>	· 26	
· 220:	• Description of Artificial Sequence: • Oligonus Leotide	
+40C:	e 20 Nast progativiaa aa asat tot ser	. •
<pre><210. +211 +212</pre>		

WO 00/43525

character character for consent at the teachers of

PCT/US00/01338

1.

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· 220 ·
2230 Depaription of Artificial Sequences primer
-400s 26
godant quatiquitiq
                                                                    1 .
<210> 27
<211> 21
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: primer
<400> 27
gacactettt getttgggte g
                                                                    21
<210> 28
<211> 8
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: peptide
      fragment
<400> 28
Asp Tyr Lys Asp Asp Asp Asp Lys
<210> 29
 <211> 27
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: peptide
       fragment
 <400> 29
 the Amp Val Ala der bew Aprillo Glim Val Glim Ala Bew Glim Gry Glim
                                       100
 Val Gln His beu Gln Ala Ala Phe Ser Gln Tyr
                                  2.5
              2.0
 -210 - 30
 +211 + 33
```

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- 220 ·
.223> Description of Artificial Sequence: peptide
     tragment
.400 - 30
Ard Met Lyn Gin He Glu Anp Lyn He Glu Glu He Leu Ser Lyn Fie
 1
Tyr His Ile Glu Asn Glu Ile Ala Arg Ile Lys Lys Leu Ile Gly Glu
                                26
Arg
<210> 31
<211> 12
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: peptide
      fragment
<220>
<223> "Xaa" at various positions throughout the sequence
      may be any amino acid
<400> 31
His Glu Xaa Xaa His Xaa Xaa Gly Xaa Xaa His Asp
         5
<210> 32
<211> 9
<212> PRT
<213> Artificial Sequence
<220>
 <223> Description of Artificial Sequence: peptide
       fragment
 <400> 32
 Ser Gln Ser Gln Pro Pro Leu Met Pro
 1 5
 ×210 × 35
 < 211 > 9
 <\!2120~\mathrm{PRT}
 <213> Artificial Sequence
 . 2200 -
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SERVE Decomiption of Artificial Regresses populate

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 $\sim 400 \sim 33$ Gir Glu Ser Lye Xaa Lye Thr Gly ~ 1